Learn to Move: a competition to bridge biomechanics, neuroscience, robotics, and machine learning to model human motor control

Seungmoon Song¹, Łukasz Kidziński¹, Rawal Khidorka², Carmichael Ong¹, Sharada Mohanty³, Jennifer Hicks¹, Joy Ku¹, Sean Carroll³, Sergey Levine⁴, Marcel Salathé³, Chris Atkeson², Steve Collins¹, Scott Delp¹

¹Stanford University, Stanford, CA, USA
²Carnegie Mellon University, Pittsburgh, PA, USA
³École polytechnique fédérale de Lausanne, Lausanne, Switzerland
⁴University of California, Berkeley, CA, USA
Email: smsong@standord.edu

Summary

We are hosting “Learn to Move: Walk Around” competition in the NeurIPS conference to invite machine learning experts to develop controllers that generate versatile human-like locomotion. It is a follow-up to our NeurIPS 2017 “Learning to Run” and 2018 “AI for Prosthetics” challenges, which attracted together 993 participants and 6729 submissions [1,2] (Figure). This year’s task is to develop a controller for a 3D human neuromechanical model (in OpenSim) to walk or run following velocity commands with minimum effort. In the long-term, we aim to bridge researchers in machine learning, robotics, biomechanics, and neuroscience to tackle a grand challenge of understanding and modeling human motor control [3-5]. In Dynamic Walking 2019, I would like to introduce the current challenge, review some of the successful approaches in the past challenges, and discuss potential how to design future competitions to pursue the interdisciplinary long-term goal.

Related Links

- Past challenges:
- Source codes: [https://github.com/stanfordnmbl/osim-rl](https://github.com/stanfordnmbl/osim-rl)

References


